

FIG. 1
(PRIOR ART)

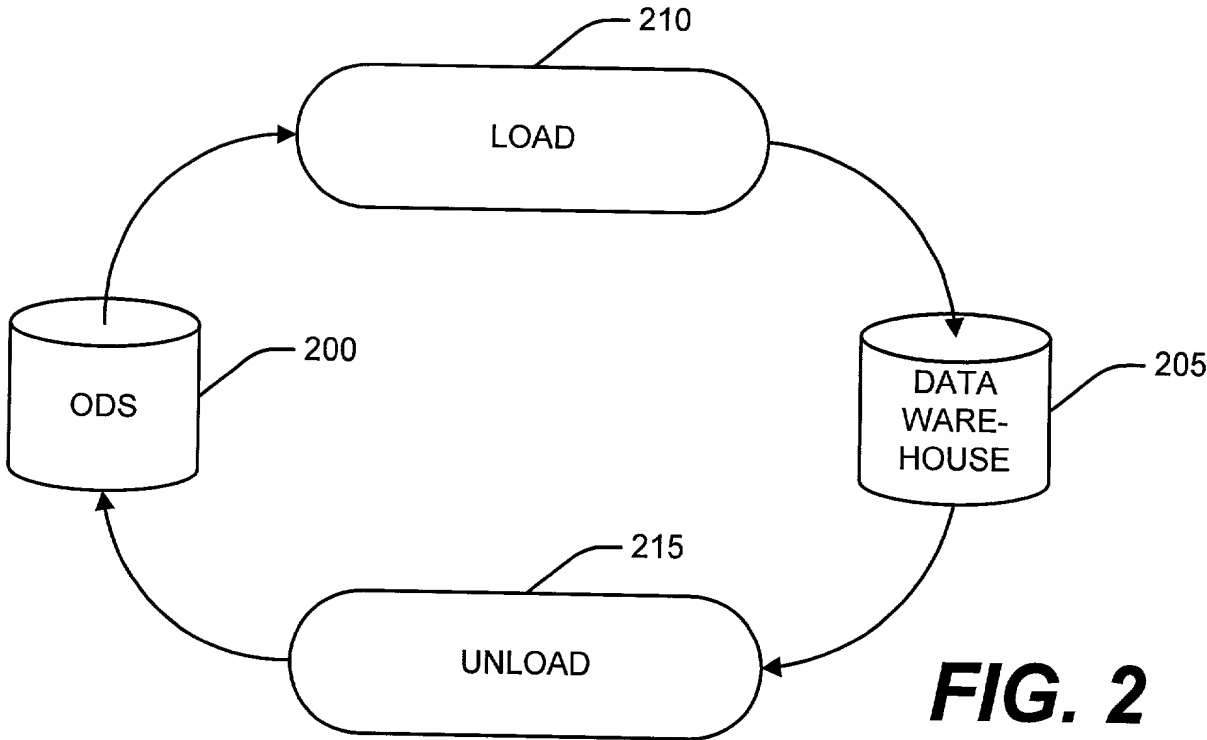


FIG. 2
(PRIOR ART)

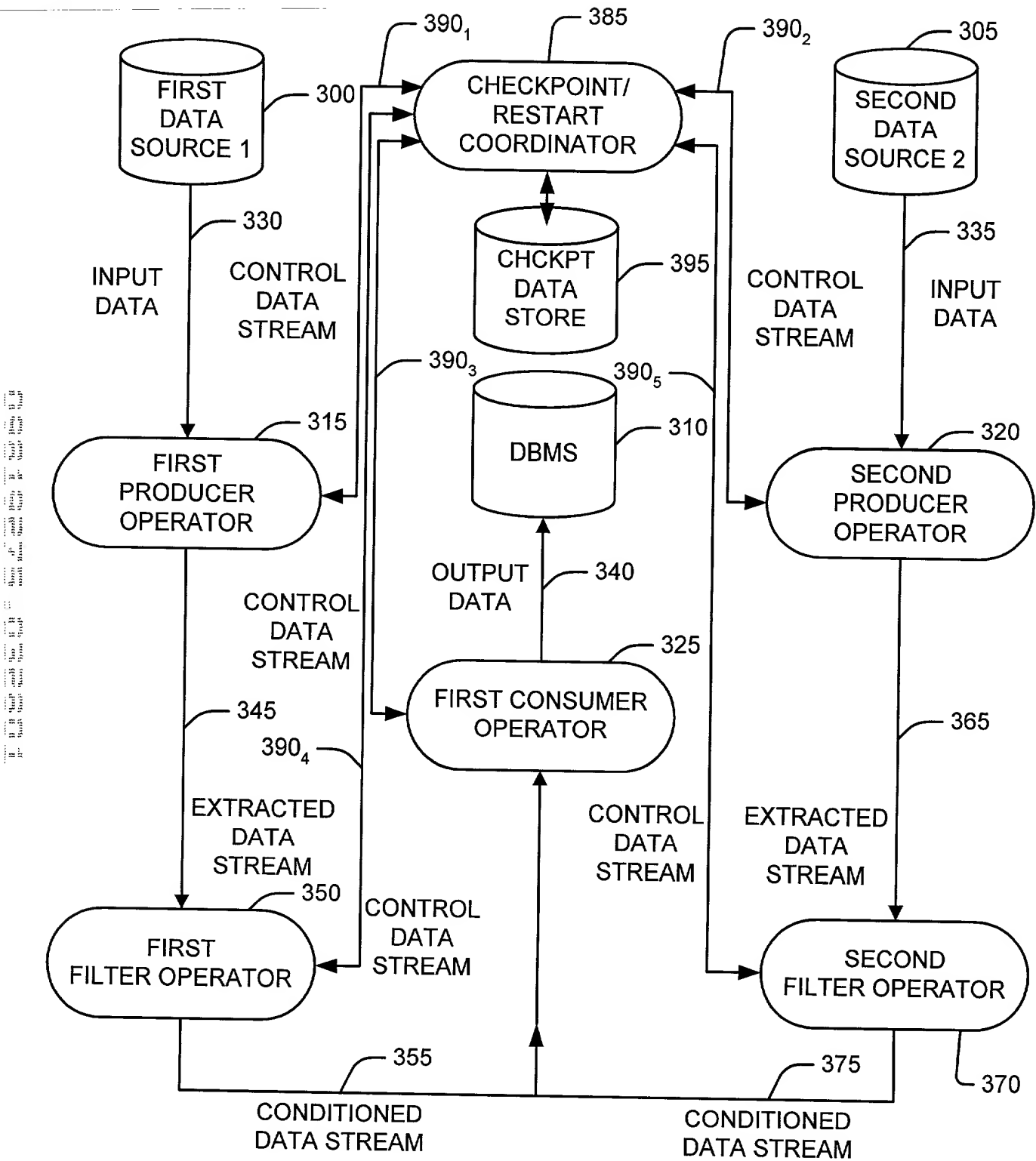


FIG. 3

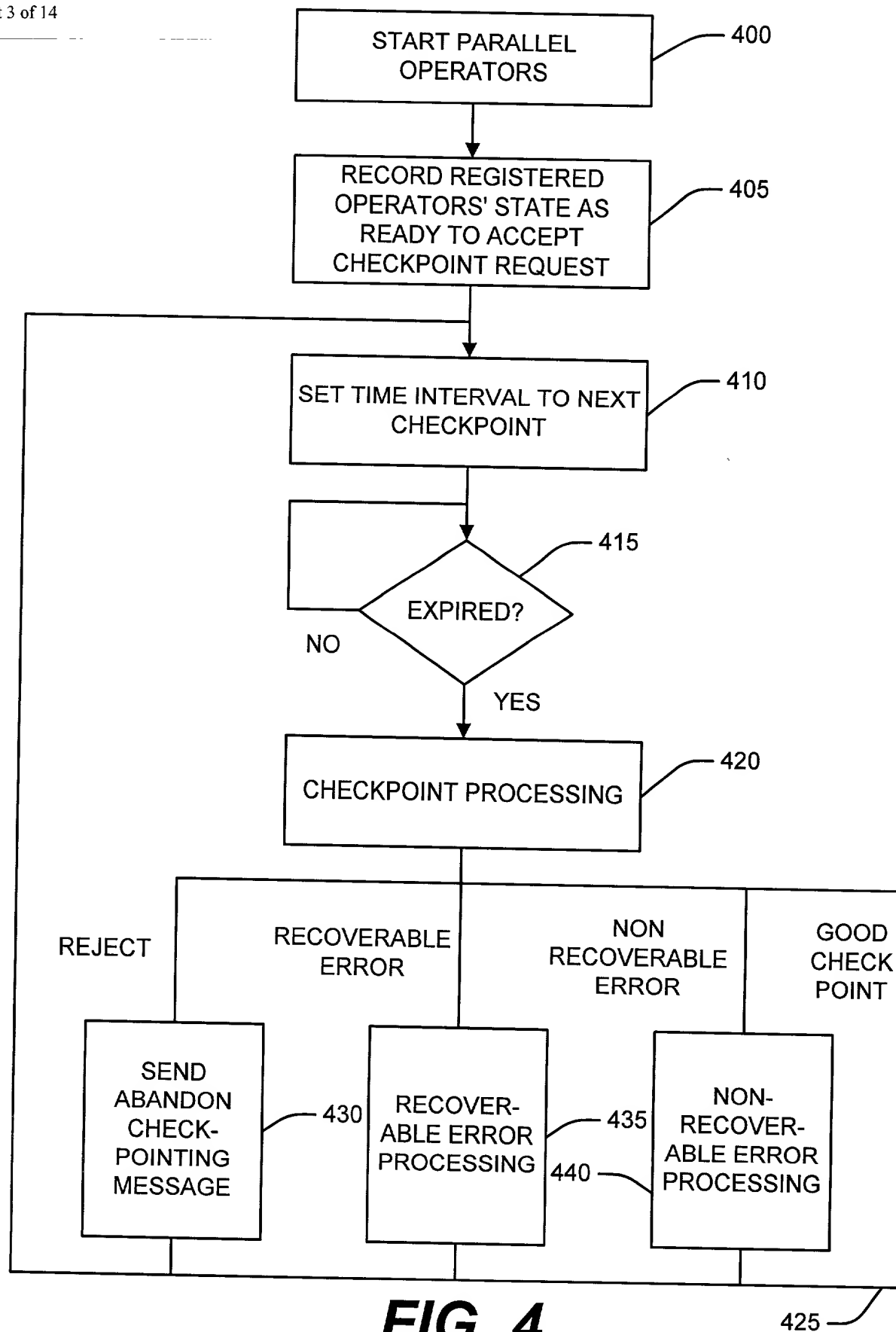


FIG. 4
(CHECKPOINT
PROCESSING)

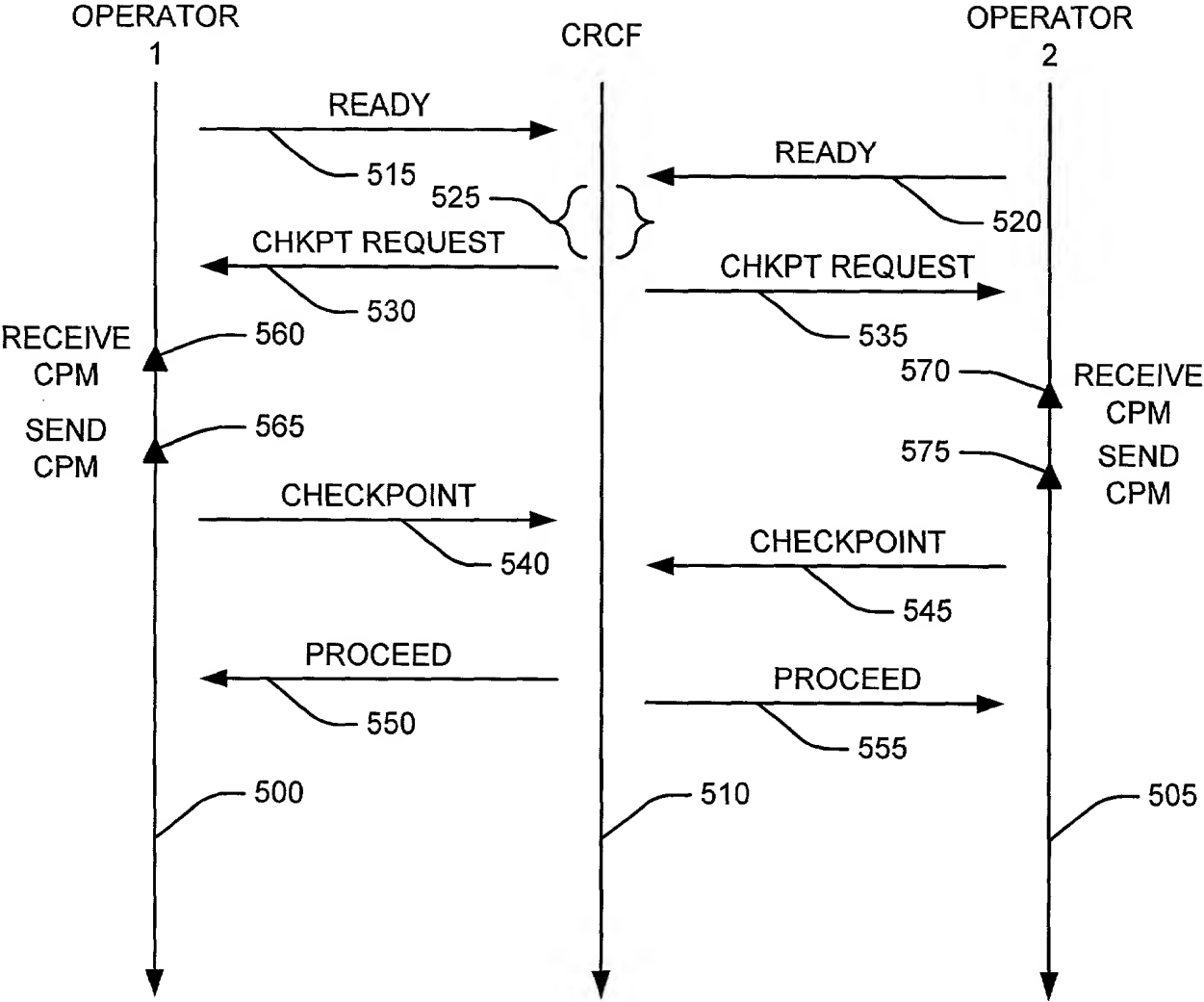


FIG. 5
(NORMAL
PROCESSING)

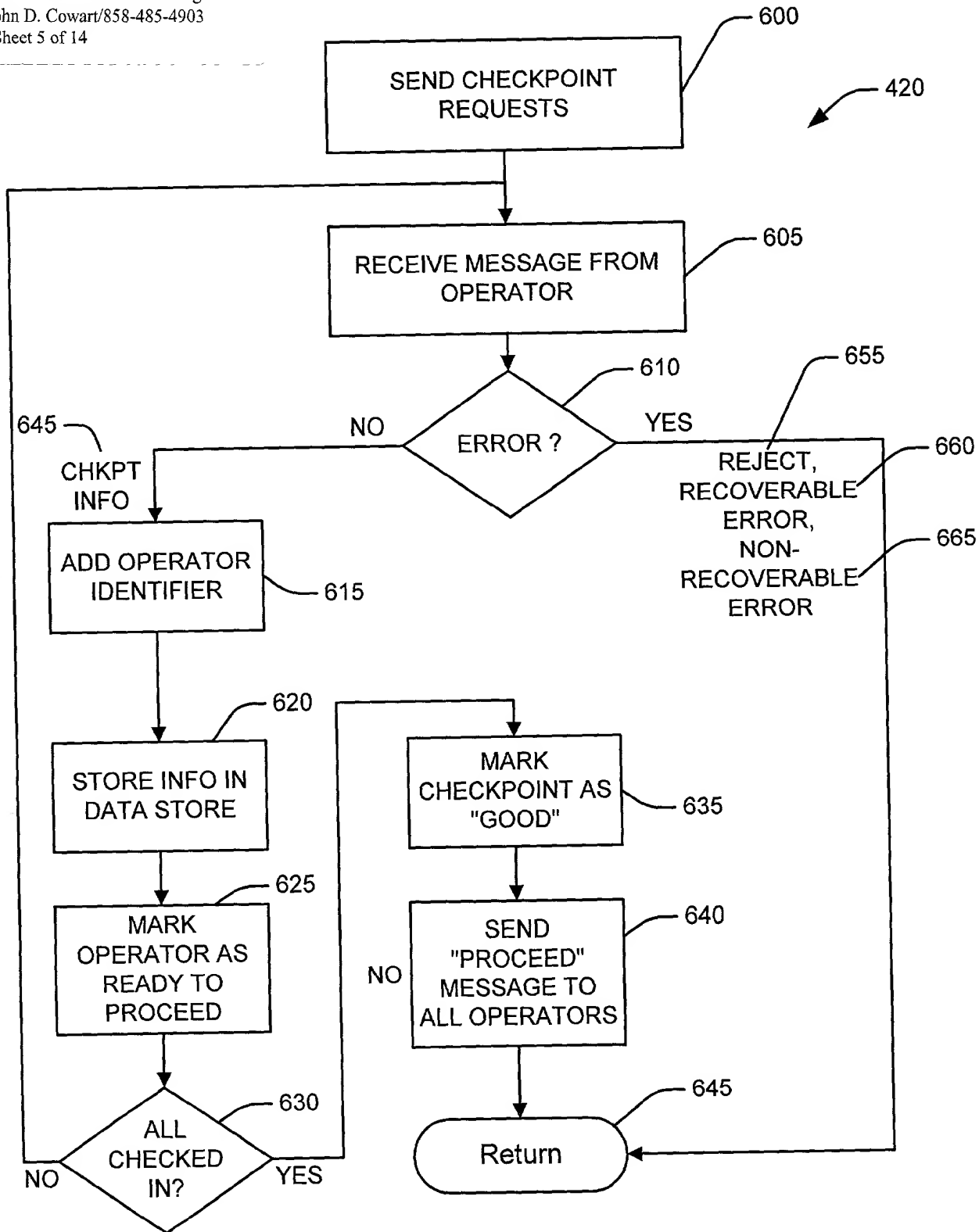


FIG. 6

FIG. 7
(CHECKPOINT
REJECTED)

FIG. 8 is a flowchart illustrating a process for gathering restart information. The process begins with a step 800, "WAIT UNTIL ALL I/O REQUESTS ARE COMPLETE". This is followed by step 805, "PROCESS THE DATA IN THE INPUT QUEUE". Step 810, "GATHER RESTART INFO FROM DATA SOURCE AND/OR TARGET", follows step 805. Step 815, "GATHER INTERNAL RESTART INFORMATION", follows step 810. Finally, step 820, "INCLUDE RESTART INFO WITH CHECKPOINT MSG", follows step 815.

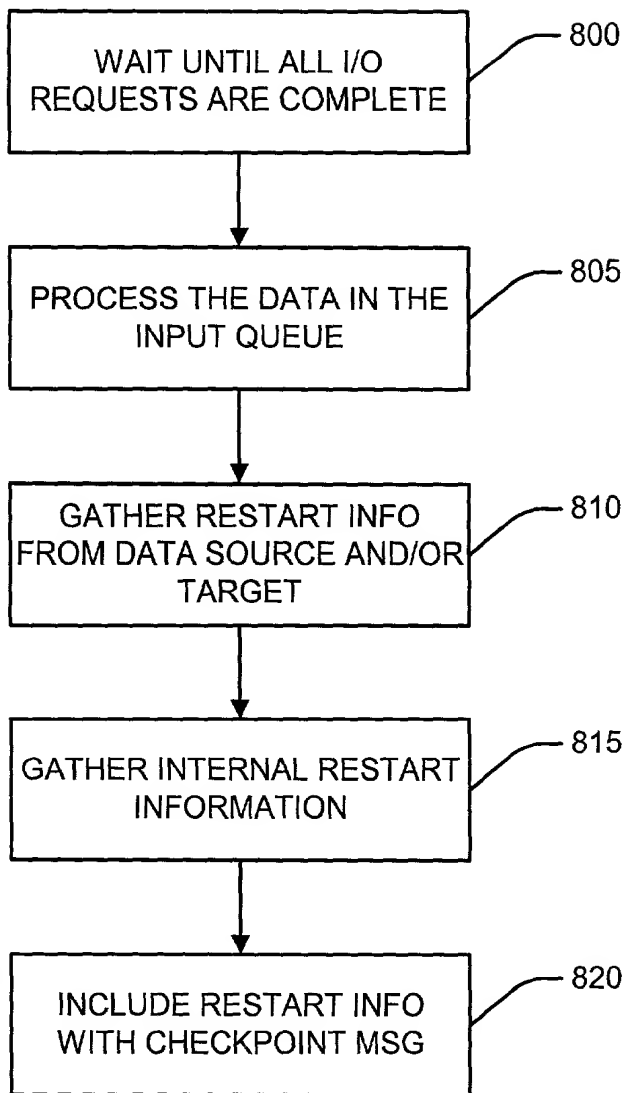


FIG. 8

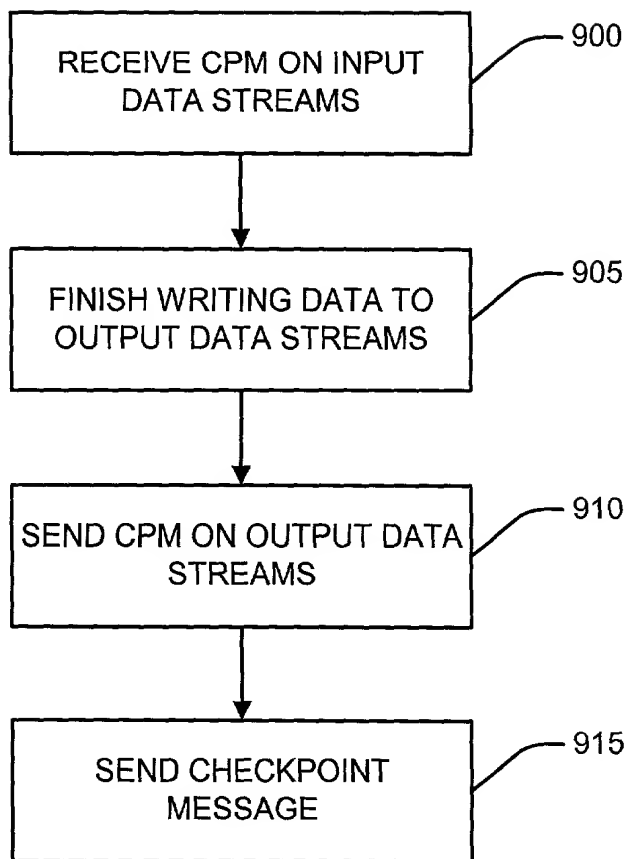


FIG. 9

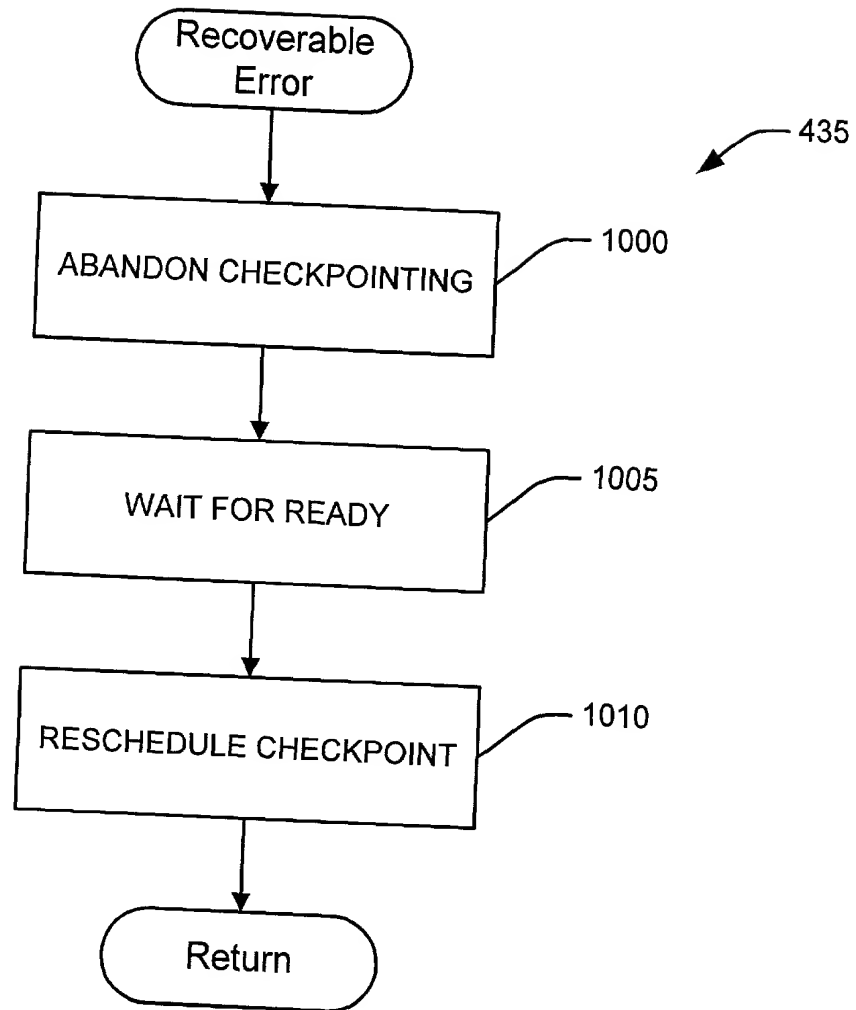


FIG. 10

B 1 B 2 B 3 B 4 B 5 B 6 B 7 B 8 B 9 B 10 B 11 B 12 B 13 B 14 B 15 B 16 B 17 B 18 B 19 B 20 B 21 B 22 B 23 B 24 B 25 B 26 B 27 B 28 B 29 B 30 B 31 B 32 B 33 B 34 B 35 B 36 B 37 B 38 B 39 B 40 B 41 B 42 B 43 B 44 B 45 B 46 B 47 B 48 B 49 B 50 B 51 B 52 B 53 B 54 B 55 B 56 B 57 B 58 B 59 B 60 B 61 B 62 B 63 B 64 B 65 B 66 B 67 B 68 B 69 B 70 B 71 B 72 B 73 B 74 B 75 B 76 B 77 B 78 B 79 B 80 B 81 B 82 B 83 B 84 B 85 B 86 B 87 B 88 B 89 B 90 B 91 B 92 B 93 B 94 B 95 B 96 B 97 B 98 B 99 B 100 B 101 B 102 B 103 B 104 B 105 B 106 B 107 B 108 B 109 B 110 B 111 B 112 B 113 B 114 B 115 B 116 B 117 B 118 B 119 B 120 B 121 B 122 B 123 B 124 B 125 B 126 B 127 B 128 B 129 B 130 B 131 B 132 B 133 B 134 B 135 B 136 B 137 B 138 B 139 B 140 B 141 B 142 B 143 B 144 B 145 B 146 B 147 B 148 B 149 B 150 B 151 B 152 B 153 B 154 B 155 B 156 B 157 B 158 B 159 B 160 B 161 B 162 B 163 B 164 B 165 B 166 B 167 B 168 B 169 B 170 B 171 B 172 B 173 B 174 B 175 B 176 B 177 B 178 B 179 B 180 B 181 B 182 B 183 B 184 B 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851 B 852 B 853 B 854 B 855 B 856 B 857 B 858 B 859 B 860 B 861 B 862 B 863 B 864 B 865 B 866 B 867 B 868 B 869 B 870 B 871 B 872 B 873 B 874 B 875 B 876 B 877 B 878 B 879 B 880 B 881 B 882 B 883 B 884 B 885 B 886 B 887 B 888 B 889 B 890 B 891 B 892 B 893 B 894 B 895 B 896 B 897 B 898 B 899 B 900 B 901 B 902 B 903 B 904 B 905 B 906 B 907 B 908 B 909 B 910 B 911 B 912 B 913 B 914 B 915 B 916 B 917 B 918 B 919 B 920 B 921 B 922 B 923 B 924 B 925 B 926 B 927 B 928 B 929 B 930 B 931 B 932 B 933 B 934 B 935 B 936 B 937 B 938 B 939 B 940 B 941 B 942 B 943 B 944 B 945 B 946 B 947 B 948 B 949 B 950 B 951 B 952 B 953 B 954 B 955 B 956 B 957 B 958 B 959 B 960 B 961 B 962 B 963 B 964 B 965 B 966 B 967 B 968 B 969 B 970 B 971 B 972 B 973 B 974 B 975 B 976 B 977 B 978 B 979 B 980 B 981 B 982 B 983 B 984 B 985 B 986 B 987 B 988 B 989 B 990 B 991 B 992 B 993 B 994 B 995 B 996 B 997 B 998 B 999 B 1000

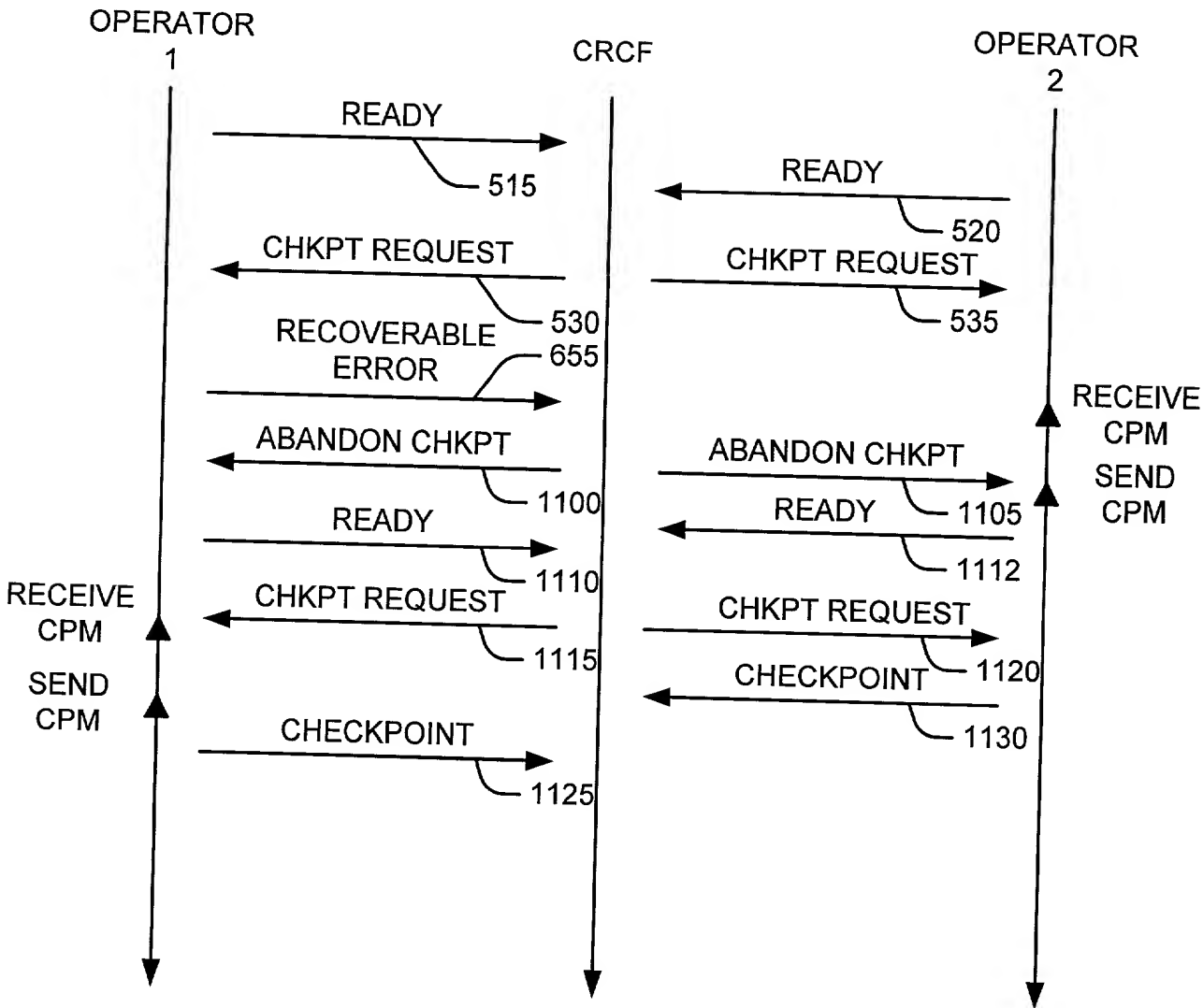


FIG. 11
 (RECOVERABLE
 ERROR)

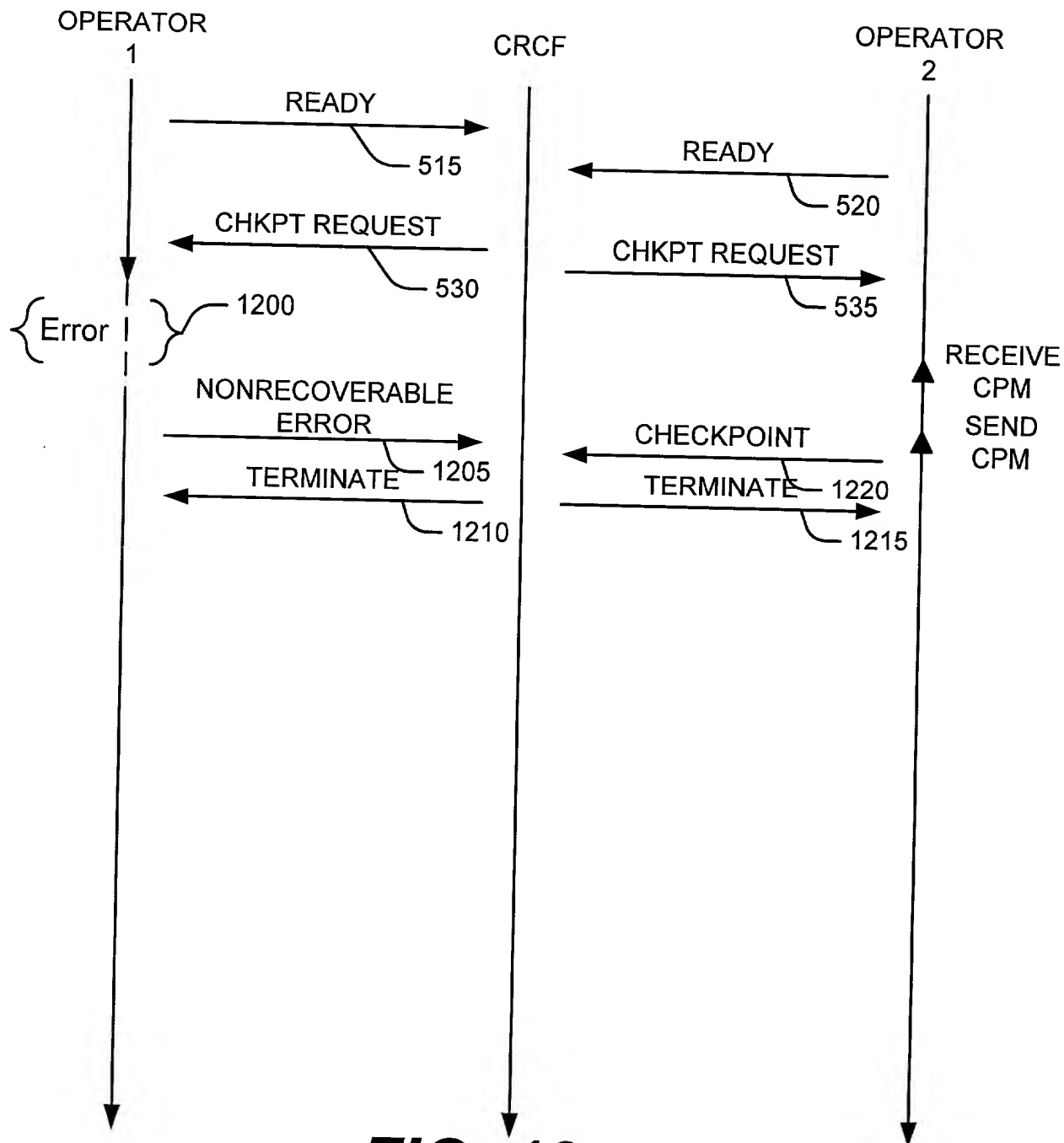


FIG. 12
 (NON-RECOVERABLE ERROR)

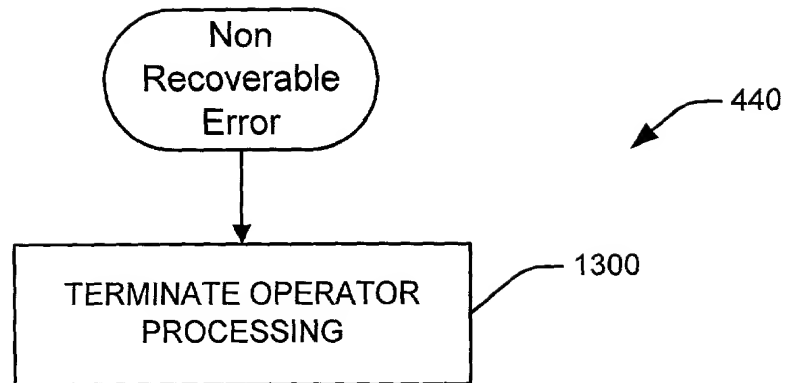


FIG. 13

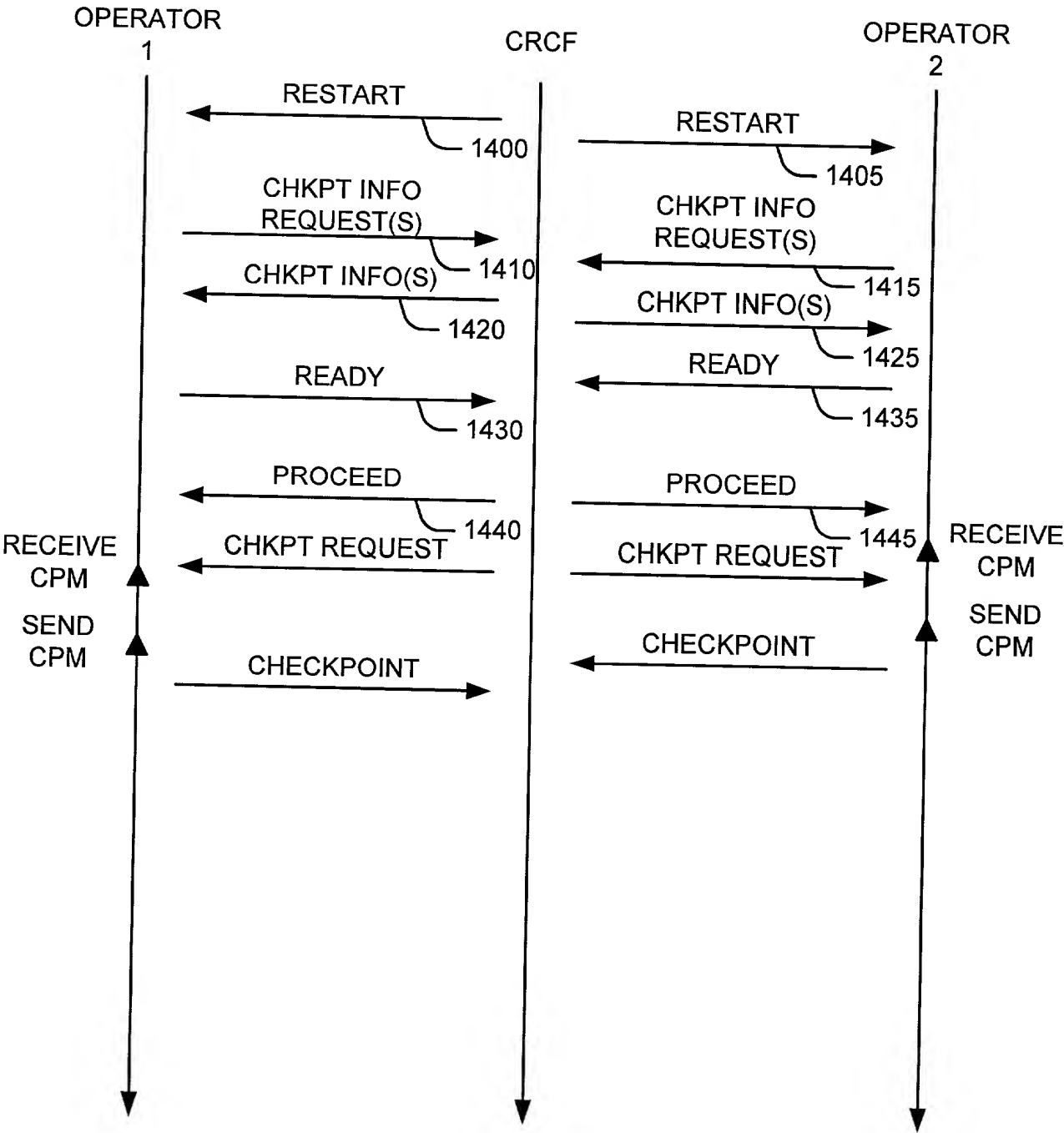


FIG. 14
(RE-START)

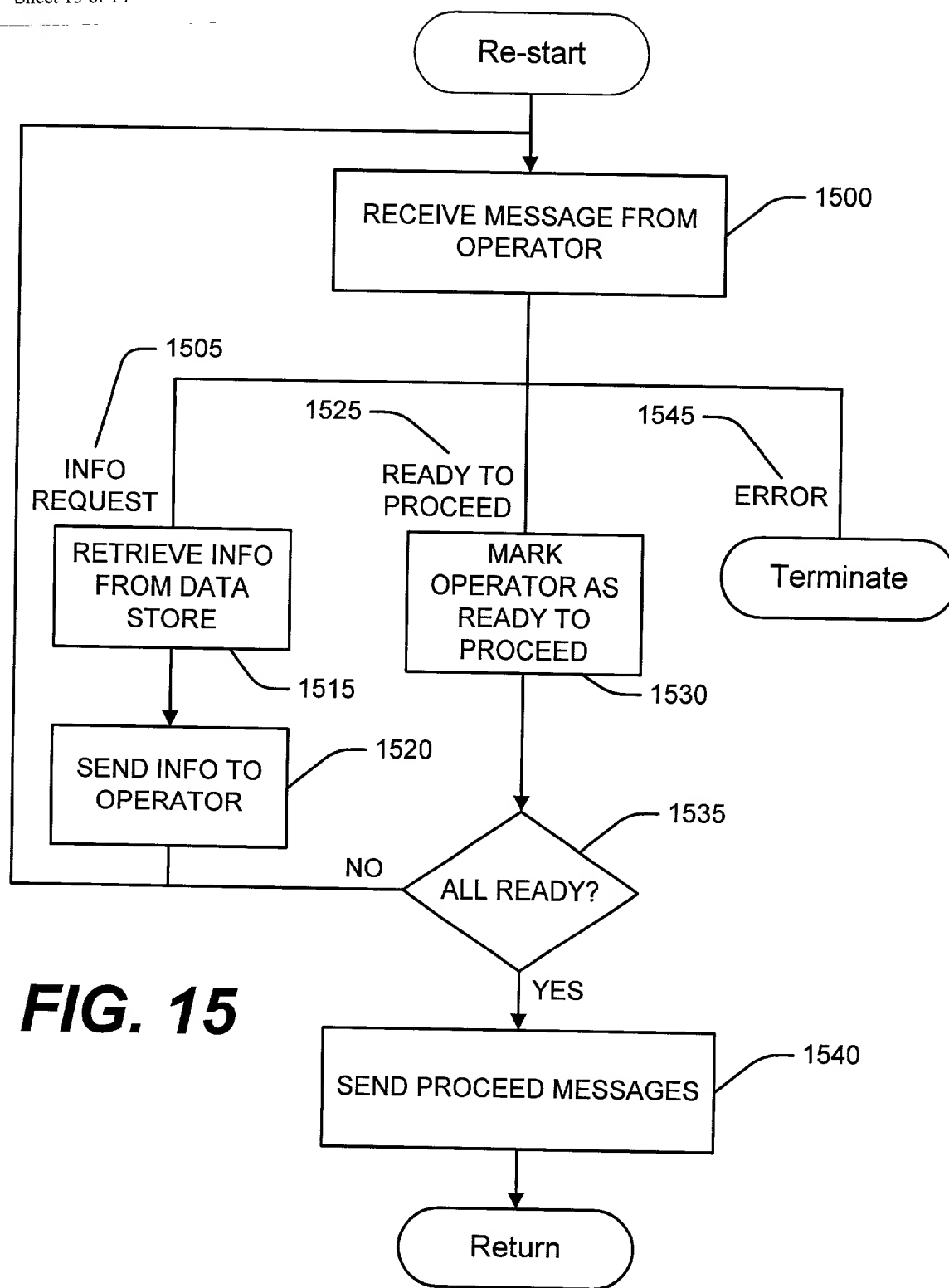


FIG. 15

